

INSTRUCTION MANUAL



INSTRUCTION MANUAL SINLINE SINLINE RACK 2U i 3U



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TABLE OF CONTENTS

TABLE OF CONTENTS	2
INTRODUCTION	3
GENERAL INFORMATION	3
PURPOSE OF THE POWER SUPPLY	3
GENERAL FEATURES OF THE UPS	4
ELEMENTS OF THE SINLINE UPS - TOWER MODEL	5
FRONT PANEL	5
REAR PANEL	6
ELEMENTS OF THE SINLINE UPS - RACK MODEL	7
FRONT PANEL	7
REAR PANEL	8
HEALTH AND SAFETY INSTRUCTIONS	8
HANDLING	8
ELECTRIC SAFETY	9
INSTALLATION	10
UNPACKING	10
INSTALLATION OF THE SINLINE UPS - Tower Model	10
INSTALLATION OF THE SINLINE UPS – Rack Model	11
CONNECTIONS	12
FIRST START	15
DESCRIPTION OF THE UPS'S OPERATION	16
GENERAL INFORMATION	16
MAINS OPERATION MODE	17
BATTERY MODULE (BATTERY) OPERATION MODE	17
SAFEGUARDS	18
COMMUNICATION BETWEEN THE UPS AND THE COMPUTER	19
INSTALLATION AND CONFIGURATION OF THE POWERSOFT PERSONAL SOFTWARE	20
Installation on computers with Windows	20
Installation on computers with Linux/Unix	20
Software Updates	21
CONFIGURING THE UPS'S PARAMETERS	22
ADDITIONAL REMARKS	23
USING THE TELECOMMUNICATIONS FILTER	23
STORAGE, MAINTENANCE AND TRANSPORT	24
FUSE REPLACEMENT – SINLINE Tower UPSs	24
DISPOSAL	24
TECHNICAL PARAMETERS – TOWER MODEL	25
TECHNICAL PARAMETERS – RACK MODEL	26
INFORMATION REGARDING REGULATIONS AND WARRANTY	27
DECLARATION OF CONFORMITY	27
WARRANTY	27

INTRODUCTION

Thank you for purchasing the EVER SINLINE UPS (UPS). It belongs to the latest series of state-of-the-art power supply devices designed to work with servers, small computer networks, as well as Tower- and Rack-type workstations. When operating in the battery mode, the UPSs of this series generate sinusoidal current at their output thanks to the Clear Digital Sinus (CDS) system and offer the feature of remote control of operating parameters via RS232 serial port.

Sinline series UPS were designed to meet all your expectations in terms of protection against power loss. The UPSs were manufactured in Poland and their structure conforms with requirements of the **CE** symbol.

GENERAL INFORMATION

PURPOSE OF THE POWER SUPPLY

SINLINE series UPSs are LINE-INTERACTIVE-class devices designed to work with equipment powered by monophase ~230V mains. In battery module operation mode they generate true sine wave voltage at their output. This enables a much wider range of tolerated loads when compared with power supply devices using approximation of the sinusoid. UPSs belonging to this group may power virtually any device whose power does not exceed the nominal power of the UPS. SINLINE UPSs do not switch off automatically even when there are no devices connected to the outlet sockets, so they may even power **devices with extremely low power consumption**. Load power of these UPSs is limited only at the upper extreme and the overload status is communicated visually, acoustically and via the PC software monitoring the device. Unlike quasi-sine wave UPSs, the SINLINE-series battery modules may power devices with induction motors.



WARNING! SINLINE UPSs were not designed to work with medical equipment, in particular life and/or health support devices.

It is not recommended to use these UPSs to power large TV sets, laser printers and other similar devices that draw greater impulse power than the battery module is capable of providing.

GENERAL FEATURES OF THE UPS

- Output true sine wave voltage generated in battery module operation mode;
- **DPC** – digital control of operating parameters of the battery module, such as:
 - shape of the output voltage,
 - frequency of the output voltage,
 - charge level of batteries;
- Digital monitoring of external parameters, such as:
 - value of the mains voltage,
 - frequency of the mains voltage,
 - value of the output voltage,
 - value of the output current,
 - value of the power connected to the battery modules output;
- AVR (Automatic Voltage Regulation) – automatic mains voltage regulation system
- Filtering of the mains voltage,
- RS232 serial port for communication with a PC;
- PowerSoft software to monitor the operating parameters of the battery module and shut down the system automatically.

ELEMENTS OF THE SINLINE UPS - Tower Model

FRONT PANEL

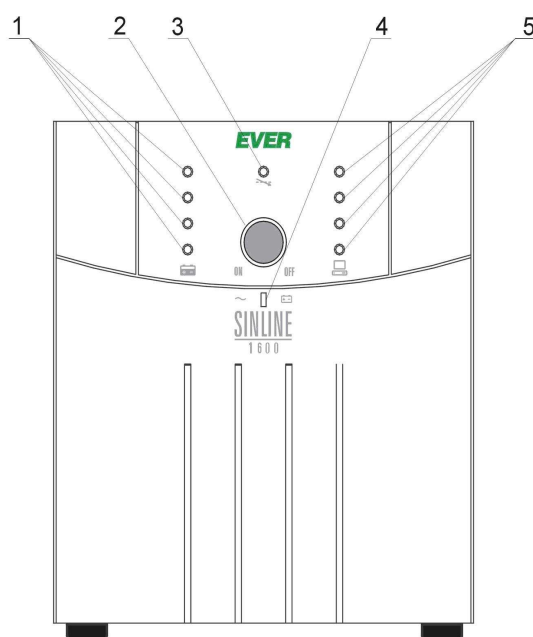


Fig. 1: Front panel

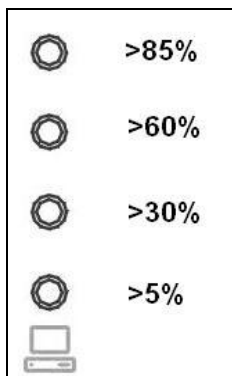
- 1) A column of green LEDs indicating the charge level of the battery. The figure below indicates the voltage thresholds for a single battery at which individual LEDs light up.

	Charging	Discharging
	14,5V	12,0V
	13,5V	11,5V
	12,5V	11,0V
	12,0V	10,5V

- 2) Power switch
- 3) LED indicating whether the AVR (**A**utomatic **V**oltage **R**egulation) system is active
- 4) Two-colour LED indicating the operation mode:
 - a. *Mains operation mode* – constant green light
 - b. *Battery module operation mode* – constant yellow light
- 5) A column of LEDs (three green, top one red) indicating the percentage load of the UPS. The top red LED indicates that the BACK-UP'Sload exceeds the recommended nominal power level.

If only the red LED is lit and blinking quickly (with acoustic signal) it indicates the occurrence of a short-circuit at the BACK-UP'S output.

If only the red LED is lit (with acoustic signal) it indicates that the battery module has overloaded.



REAR PANEL

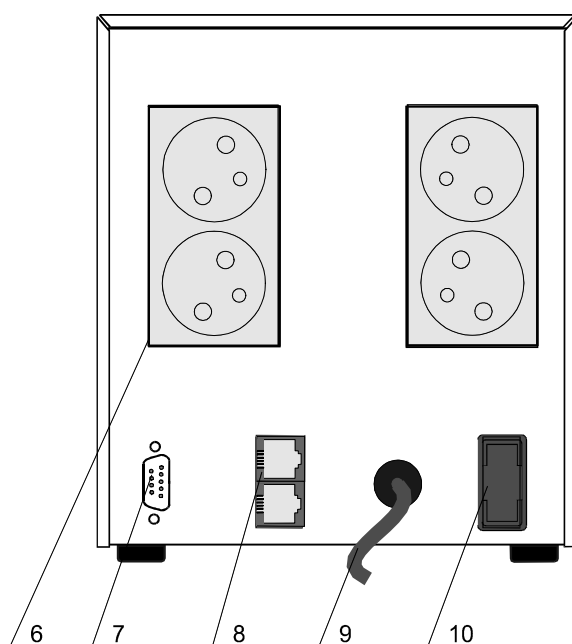


Fig. 2: Rear panel

- 6) Outlet sockets
- 7) RS232 serial port for communication with a PC
- 8) Telecommunications filter sockets
- 9) Power cord
- 10) Circuit breaker (fuse in battery modules with power of 800VA, 1200VA and 1600VA; circuit breaker in battery modules with power of 2000VA and 3000VA)

ELEMENTS OF THE SINLINE UPS - Rack Model

FRONT PANEL

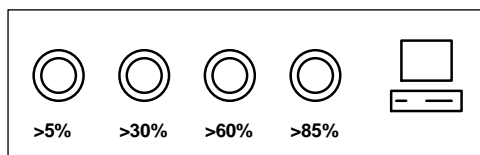


Fig. 3: SINLINE RACK 19" 2U and 3U – Front Panel

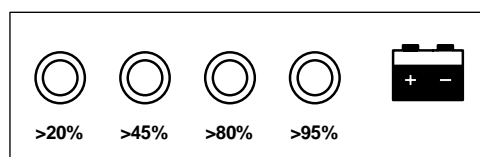
- 1) Circuit breaker
- 2) Power switch
- 3) Two-colour LED indicating the operation mode:
 - a. *Mains operation mode* – constant green light
 - b. *Battery module operation mode* – constant red light
- 4) LED indicating whether the AVR (**A**utomatic **V**oltage **R**egulation) system is active.
- 5) A line of LEDs (three green and one red) indicating the percentage load of the UPS. The red LED indicates that the BACK-UP'S load exceeds the recommended nominal power level.

If only the red LED is lit and blinking quickly (with acoustic signal), it indicates the occurrence of a short-circuit at the BACK-UP'S output.

If only the red LED is lit (with acoustic signal), it indicates that the battery module has overloaded.



- 6) The line of green LEDs indicates the charge level of the battery. The picture below indicates the thresholds for a single battery, at which individual LEDs light up.



REAR PANEL

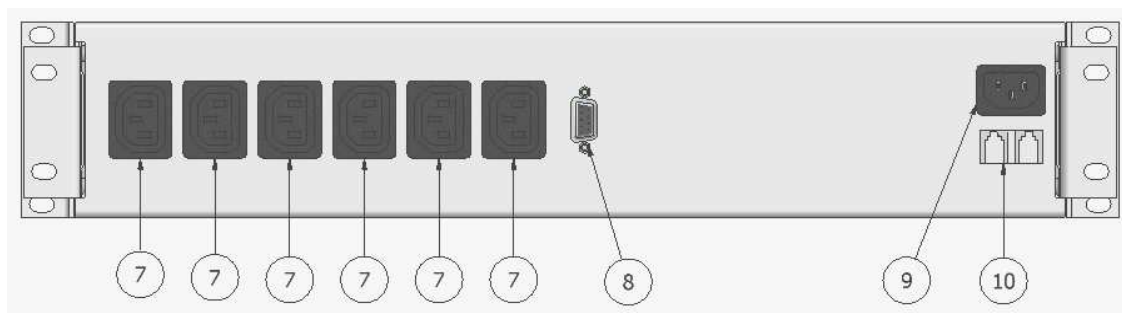


Fig. 4: SINLINE RACK 19" 2U – Rear Panel

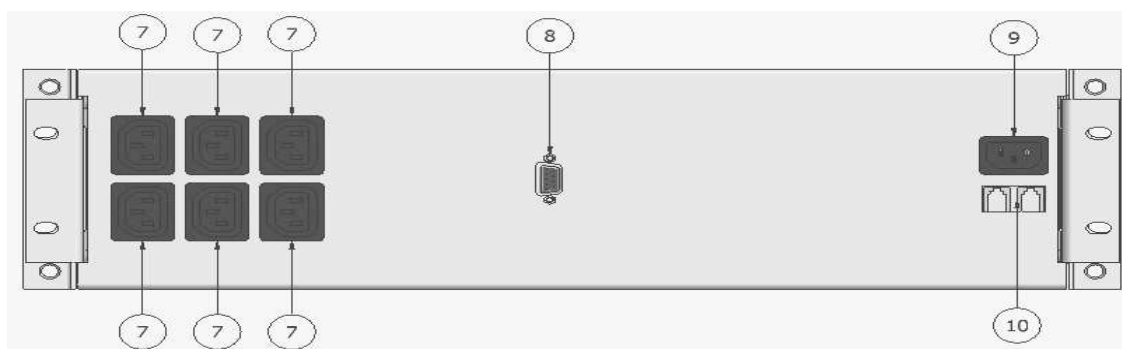


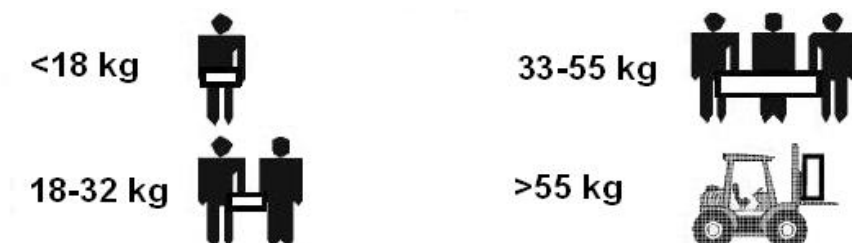
Fig. 5: SINLINE RACK 19" 3U – Rear Panel

- 7) IEC 320 C13 outlet sockets
- 8) RS232 serial port for communication with a PC
- 9) Power cord socket
- 10) Telecommunications filter sockets

HEALTH AND SAFETY INSTRUCTIONS

HANDLING

- exercise utmost caution when handling the device;
- do not handle heavy equipment by yourself;



- storage and operation of the device should take place in conditions conforming to its specification.

ELECTRIC SAFETY

- Never work alone in conditions that may be hazardous to health and/or life;
- Even a momentary shorting of a strong current may lead to severe burns;
- Prior to connecting the device to the mains inspect the condition of power cords, plugs and sockets, as well as the condition of the device itself;
- To minimise the risk of electric shock, in cases when there is no way of verifying the earthing, the device should be disconnected from the mains before installation or connection of other equipment to the battery module – reconnect the power cord only after all connections are made;
- To avoid the risk of electric shock when connecting and disconnecting signal cables and touching two surfaces with differing electric potential, if possible use only one hand;
- The device must be plugged in to a 3-lead socket (two poles and earthing) – connecting the device to any other socket may result in electric shock;
- The device receiving the current must be connected with an appropriate circuit protection (manual circuit breaker or circuit breaker);
- A device powered via a cord with a plug has an earthing lead that carries away the leakage current from the receivers (e.g. computer equipment) – the total leakage current must not exceed 3.5mA.

Users are forbidden to carry out any maintenance activities, as they may lead to injury or death. Any repairs and replacement of batteries should be conducted only by a qualified representative of the technical support.



WARNING! The UPS is disconnected from the mains only when the power cord is removed from its socket.



WARNING! Since the device is equipped with internal power source (batteries) the output may provide current even though the device itself is not connected to the mains.



WARNING! SINLINE and SINLINE RACK UPSs were not designed to work with medical equipment, in particular life support devices.

INSTALLATION



WARNING! Prior to the installation of the UPS it is crucial to familiarise yourself with the health & safety measures provided in the previous chapter.

UNPACKING

Please inspect the UPS upon receipt. Although the product is packed very carefully it might have sustained damage from shock during transport. Should you find any damages, please inform the carrier or dealer immediately.



WARNING! The device is delivered with its battery connected.

Check the contents of the packaging. The packaging should contain:

- the UPS.
- a CD-ROM with the PowerSoft software and complete instruction manual,
- quick reference guide,
- RS232 communication cable to connect the battery module to a computer,
- warranty card,
- backup fuse (only for Sinline Tower model backups with the power of 800 VA, 1200 VA and 1600 VA),
- 2 moving handles for cabinet installation (Rack Model only).

INSTALLATION OF THE SINLINE UPS - Tower Model

When choosing the installation location you must take the device's weight into account. The battery module should only be used in rooms where dustiness, temperature and moisture levels conform with the device's specification. To ensure a correct operation of the battery module, appropriate cooling conditions for the device must be provided. For this reason the ventilation openings on the BACK-UP'Scase must be uncovered and the distance between the battery module and other objects should be at least 10 cm.



WARNING! The device must not be installed in the proximity of flammable materials!

INSTALLATION OF THE SINLINE UPS – Rack Model

When choosing the installation spot you must take the device's weight into account. Strength of the supporting cabinet/rack is the most important. The battery module should only be used in rooms where dustiness, temperature and moisture levels conform with the device's specification. In order to ensure correct operation of the battery module, appropriate cooling conditions for the device must be provided. For this reason the ventilation openings on the BACK-UP'Scase must be uncovered.

The battery module is designed for installation in a cabinet/rack. To facilitate installation in cabinets/racks of various depth, the device is equipped with moving handles which enable installation in racks with depth of up to 600 mm. If the battery module is to be installed in a rack of 800-mm or 1000-mm depth it is possible to order longer handles to adjust the product for installation in such a rack. To install the UPS take the following steps:

1. Remove the handles marked as "1" by sliding them out of the rear part of the sides of the UPS.
2. Install the battery module by screwing the front brackets "2" to the rack's frame.
3. Supporting the BACK-UP'Sbase with hand, slide the handles "1" into the rear part of the BACK-UP'Ssides.
4. Move the handles "1" to the rack's frame and screw them down

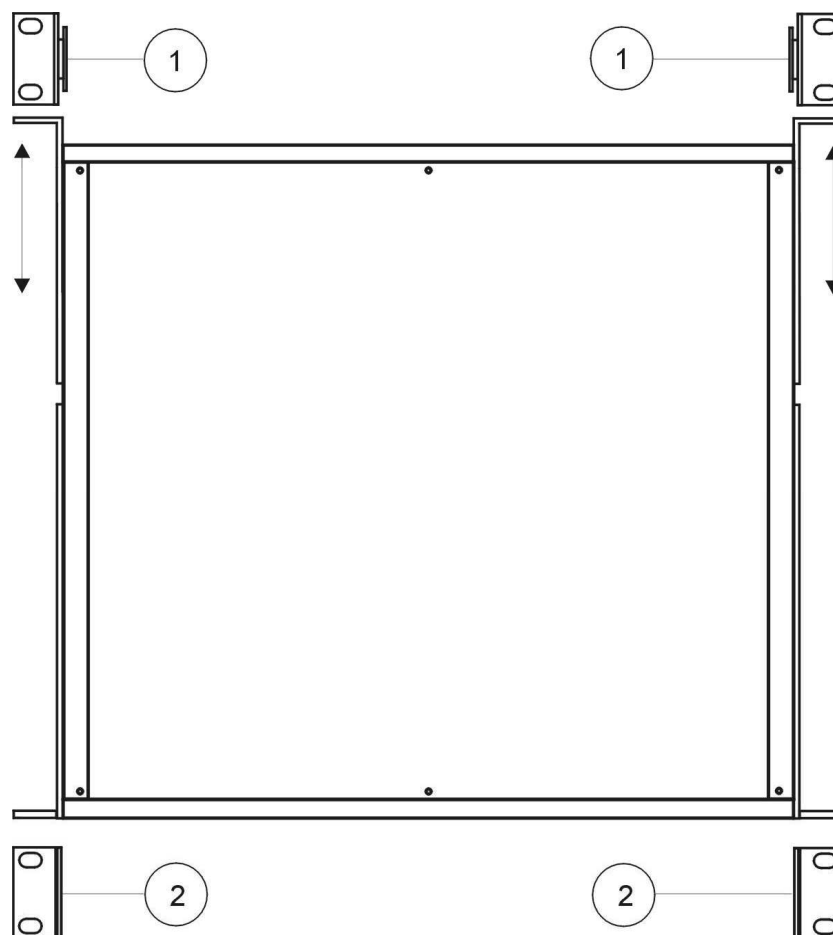


Fig. 6: SINLINE RACK 19" – Top View



WARNING! The device must not be installed in the proximity of flammable materials!

CONNECTIONS

The mains socket the UPS is to be connected to should be located near the battery module (maximum distance – 1,5 m) and should be easily accessible.

Do not use additional extension cords to connect the device to the mains .



WARNING! The UPS is disconnected from the mains only when the power cord is removed from its socket.

Due to the type and location of circuit breakers in the UPS, the safety circuits of the building function as one of the protection measures. **This is essential to provide the UPS with shorting protection.** Protection parameters of the buildings' installations should be adjusted according to the type and size of load connected to the installation. Differing characteristics of protections of installations in the building and the UPS may in extreme cases lead to quicker responses of the former.

Input installation

To connect the UPS in accordance with the instruction manual the layout of terminals of the mains socket is important.

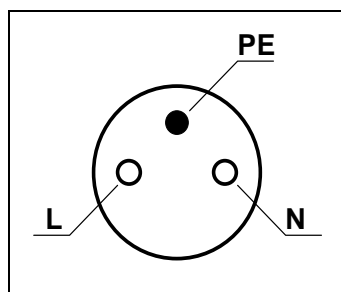


Fig. 7: Layout of terminals of a mains socket

The figure below presents the correct ways of connecting the UPS to different types of mains (TN-S or TN-C-S) that vary with regard to the manner of earthing.

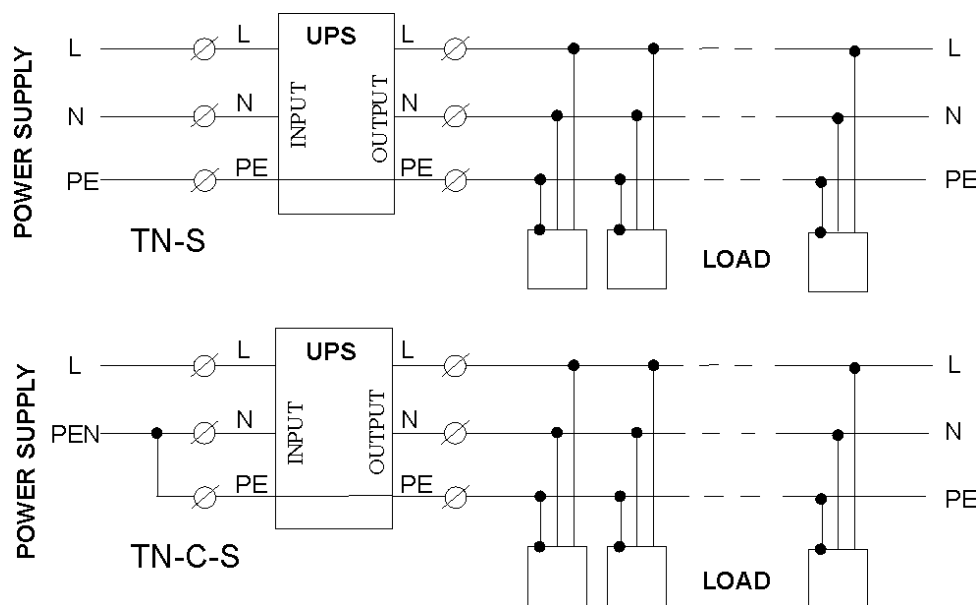


Fig. 8: Input installation of the UPS

Output installation

Even though the input side allows both types of terminals, the output installation arranged inconsistently with this instruction may damage the UPS. The diagram of correctly arranged output connections is presented on the scheme below.

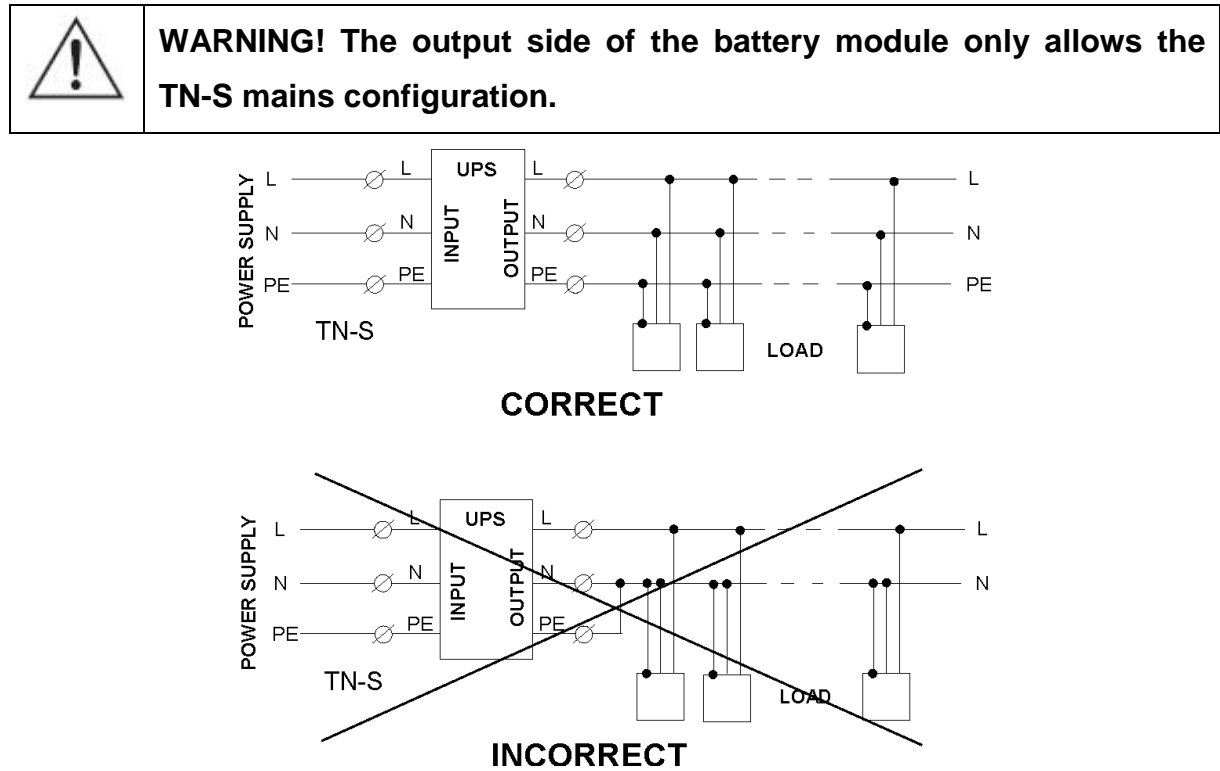


Fig. 9: Output installation of a Tower model Sinline UPS

The arrangement of terminals of output sockets of Tower and Rack model Sinline UPS is presented on figures 10 and 11 below.

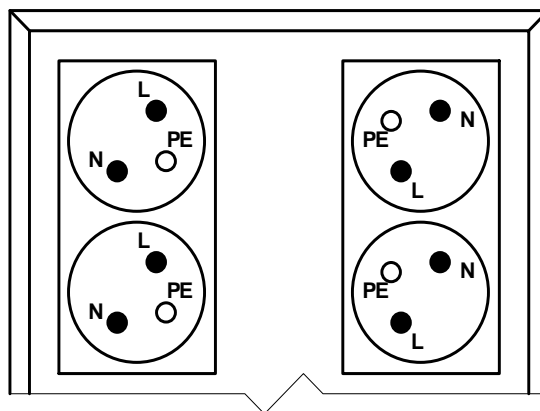


Fig. 10: The arrangement of terminals of output sockets of Tower model Sinline battery module

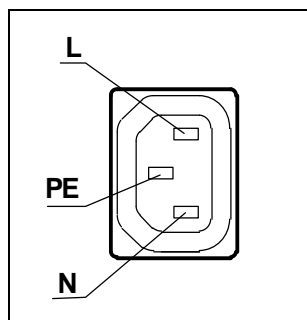


Fig. 11: The arrangement of terminals of output sockets of Rack Model Sine battery module

FIRST START



WARNING! The UPS may only be connected to a ~230V mains socket equipped with a grounding bolt. Electric installation of the building to which the battery module is connected must be protected against overloads and shorting.

After unpacking, place the device in the chosen location, connect it to the mains and turn on the UPS with the switch on the front panel in order to charge the internal batteries. Charging time of batteries can be found in the technical parameters table. Afterwards, the user may continue with the installation procedure. Take the following steps:

- Turn the UPS off (switch in the "0" position) – only if it was turned on,
- connect the devices that require buffer power supply (e.g. computer and monitor) to the outlet sockets on the UPS,
- connect the UPS to the computer via the RS232 cable,
- turn on the UPS with the switch on the front panel (switch in the "1" position),
- turn on the devices connected to the UPS,
- install the monitoring software on the control computer (see chapter "Installation and configuration of the PowerSoft software").

With all of the above steps complete the UPS is ready for operation.



WARNING! BACK-UP'S batteries reach their full capacity after approximately a month of mains operation mode.

DESCRIPTION OF THE UPS'S OPERATION

GENERAL INFORMATION

The SINLINE UPS is a state-of-the-art electronic device constituting an autonomous source of true sine wave voltage of ~230V. This device belongs to the LINE – INTERACTIVE class of uninterruptible power supply devices, including the **CLEAR DIGITAL SINUS** (CDS) system that generates a clear voltage sinus at the battery output. This system increases the reliability of the device and guarantees a stable operation of the UPS.

The UPS also utilises the system of advanced **DIGITAL POWER CONTROL** (DPC) which precisely shapes the oscillation of the output voltage to obtain a clear sinus. In the mains operation mode the system filters the mains voltage to remove the noise and distortions that may be dangerous for the load.

With the help of the **Automatic Voltage Regulation** (AVR) system the UPS instantly corrects slight drops in mains voltage to provide the receivers with appropriate power supply conditions without tapping into the energy reserves stored in the batteries. In the battery module operation mode the system generates a precisely stabilised output voltage in the shape of sinusoid, which enables supplying power to a wide range of equipment that does not tolerate quasi-true sine waves.

The dedicated DPC system monitors the operation of the UPS; it has a precise and very quick-reacting system of detecting overloads and outlet shorting in the battery module operation mode. In the mains operation mode the shorting protection is provided by a circuit breaker, while the overload protection provided by the DPC system is as precise, as it is in the battery module operation mode.

When the UPS is launched in the battery module operation mode, the DPC system utilises a special soft start mode in order to engage with high loads that draw high starting current.

The DPC system also provides advanced methods of communication between the UPS and the computer via the RS232 port.

The DPC system provides precise measurements of such basic parameters of the UPS as: battery voltage, mains frequency and input voltage, voltage and output current of the battery module, the power of load connected.

This UPS utilises an innovative charging method reserved only for the most advanced UPSs (**CBC - COOL BATTERY CHARGING**). During the mains operation mode it charges the batteries and in the battery module operation mode it converts the internal energy of the battery into the alternating current to power the protected devices.

MAINS OPERATION MODE

Turning the UPS on with the switch on the front panel is signalled by momentary lighting up of all LEDs located on the front panel and then by alternate blinking of the green/yellow (or green/red in the Rack model) operation mode LED. The lighting up of LEDs is accompanied by an acoustic signal. After the initialisation process the UPS will attempt synchronisation with the mains. If the mains voltage of the socket to which the BACK-UP's power cord is connected is appropriate then after approximately 10 seconds the UPS switches to the mains operation mode and lights the green operation mode LED. If the mains voltage is incorrect (too low or too high voltage or frequency exceeding the operation range) the UPS switches to the battery module operation mode and lights the yellow operation mode LED (or red in the Rack model). In the mains operation mode the UPS's outlet provides mains voltage that was filtered or raised by the AVR system.

BATTERY MODULE (BATTERY) OPERATION MODE

In the battery module operation mode the output true sine wave voltage is generated by the battery until the mains voltage returns or the battery is discharged. When operating in the battery module mode, if the battery is discharged or the UPS receives an appropriate command from the control software, it may switch to the battery stand-by mode.

In case of an overload the UPS lights up the red LED in the load indication column and emits a continuous sound signal. In case of a shorting in battery module operation mode the UPS will communicate this by a quick blinking of the red LED in the load indication column, together with an intermittent sound signal. If the shorting lasts longer than approximately 0.5 second the UPS switches to and remains in the "emergency" mode until the user switches the device off or until the batteries are discharged.

SAFEGUARDS

Against overloads

Overload is signalled by constant shining of the last LED (red) in the load indication column and a continuous sound signal. If the UPS is operating in battery module mode then after a short time the overload causes the UPS to switch to emergency operation mode.

In addition, the UPS is equipped with internal safeguards against overloads and shorting of the battery circuit.

Against shorting

In the mains operation mode the safeguard against shorting is provided by the circuit breaker located in the rear section of the UPS.

If the shorting occurs in the battery operation mode, the output current is limited to a safe level. This is signalled by a quick blinking of the last LED (red) in the load indication column and a quick, intermittent sound signal. If the shorting lasts longer than 0.5 second, the UPS switches to the emergency operation mode.



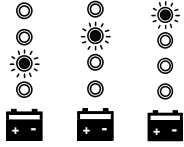
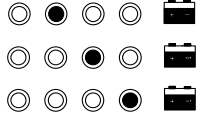
Against overvoltage

Devices connected to the UPS are protected against mains overvoltage. This solution protects the receivers against impulse current rushes caused by atmospheric phenomena or power grid disruptions.

Against incorrect connection

Incorrect connection of the UPS causes it to switch to emergency operation mode the moment it is switched on. Such an event is signalled by slow blinking of the last LED (red) in the load indication column and an intermittent sound signal mirroring the rate of blinking. In addition, the layout of lit LEDs in the battery charge level column indicates the type of error. (see the Error Table below)

Table 1

ERROR TABLE		
Signalling		Type of error
Tower Model	Rack Model	
		UPS connected incorrectly
		Internal errors (a combination of lit LEDs indicates various errors) ¹⁾

1) Information for the tech support

COMMUNICATION BETWEEN THE UPS AND THE COMPUTER

SINLINE series UPSs come with enhanced control features. The UPS is delivered with a built-in RS232 communication port and the PowerSoft software package. In order to ensure correct cooperation, the UPS must be connected to the computer with the provided cable. After the cable is connected, turn on the battery module, start the computer and install the software in accordance with the instruction manual or the instructions provided by the installation software.

WARNING! The communication connection between the UPS and the computer should be made only if the user intends to use the control software. If the software is not installed while the connection is made, the RS232 port may receive random conditions (PNP or others) which may lead to incorrect operation of the UPS.



WARNING! The computer controlling the UPS should be powered by the battery module. Otherwise the communication interface may become damaged.

INSTALLATION AND CONFIGURATION OF THE POWERSOFT PERSONAL SOFTWARE

Installation on computers with Windows

Prior to beginning the installation of PowerSoft:

- Uninstall the current version of PowerSoft or any other control software (if the user is changing the UPS protecting the computer),
- Connect the communication cable, if it has not been connected. While doing this, remember that both the UPS and the computer should be switched off.

In order to install PowerSoft on a computer with Windows (the list of operating systems compatible with the application is available at www.ever.eu) just run the software installer and follow the instructions onscreen. During the installation you will be asked to select the model of the UPS connected to the computer on which the software is being installed. This setting may also be changed when the application is running.

To uninstall PowerSoft select the "Uninstall PowerSoft" option in Start Menu. You can also uninstall PowerSoft from the "Add and remove programs" menu in the control panel.

Installation on computers with Linux/Unix

The binary version of the application for Linux/Unix systems is provided in the following formats:

CentOS, RedHat, Suse Linux, Fedora Core

For the CentOS, RedHat, Suse Linux, and Fedora Core systems the software is provided in the form of a RPM package. The software can be installed by using any package manager available for the system installed. If you are using the command line the software is installed by entering the following command:

```
rpm -ivh PowerSoftpersonal-x.x.x.i386.rpm
```

Users working with the PowerSoft must have root privileges to install and use the software. After installation the application may be found in the */usr/local/PowerSoft* directory.

To uninstall the application enter the following command:

```
rpm -ev PowerSoftpersonal-x.x.x
```

Debian

For the Debian systems the software is provided in the form of a DEB package. The software is installed with the use of the following command:

```
dpkg --install PowerSoftpersonal-x.x.x.deb
```

To uninstall the application enter the following command:

```
dpkg --remove PowerSoft
```

FreeBSD

For FreeBSD systems the software is provided in the form of the default package format designed for FreeBSD systems. The software is installed via the following command:

```
pkg_add PowerSoftpersonal-x.x.x.tbz
```

To uninstall the application enter the following command:

```
pkg_delete PowerSoft
```

Starting the software

When the installation is complete, the system service is started automatically, while the control panel application can be found at */usr/local/PowerSoft*.

Please note that for the English diacritics to be correctly displayed the system locale should be English

Software Updates

Windows systems

The software installer for Windows systems has a built-in automatic updater. PowerSoft can regularly check for new software versions and notify the user when updates are available. By default the software checks for updates after user logs in. This setting can be changed under the "Update Configuration" tab in the system's program menu.

Linux/Unix systems

For Linux/Unix systems PowerSoft can be updated by downloading the new package from www.ever.eu.

For CentOS, RedHat, Suse Linux, and Fedora Core PowerSoft can be updated by entering the following command:

```
rpm -Uv PowerSoftlite-x.x.x
```

For Debian and FreeBSD systems we recommend uninstalling the old version and then installing the new version of the software. Commands which enable these operations are described in the instruction manual available at www.ever.eu.

CONFIGURING THE UPS'S PARAMETERS

PowerSoft Plus allows the user to change certain parameters of the UPS. To enable this, the UPS must be connected to the computer with the cable provided by the manufacturer. A list of these parameters together with available settings is presented in the table below.

Table 2



PARAMETER/FUNCTION	DEFAULT SETTING	USER CHOICE	DESCRIPTION
Acoustic signalling	On	On/Off	Only for the battery operation mode
Delay before standby mode	90 sec.	5 – 255 sec.	Time between system shutdown and the UPS switching to standby mode
UPS switching thresholds	Standard	Standard/Enhanced	Switching thresholds when going from mains mode to battery mode

Table 3

		Switching from mains to battery mode		Switching from battery to mains mode	
		Standard	Enhanced	Standard	Enhanced
Thres hold	Lower	160 V	145 V	165 V	150 V
	Upper	264 V	280 V	259 V	275 V

Voltage tolerance range presented in the table above is $\pm 2\%$. These are the rms values of alternate current.

ADDITIONAL REMARKS

	CAUTION: This is a C2-category UPS. In domestic environment the product may interfere with reception of radio waves so the user may be required to implement additional preventive measures.
	WARNING! No service elements located inside the UPS are to be modified by the end user.

- Damaging the warranty seal will void the warranty for the given device.
- Any repairs should be conducted only by qualified technical support staff.
- The UPS may not perform as expected if the powered equipment draws high impulse power. In practice this means that even though mean power of the protected equipment does not exceed the power range accepted by the UPS, the equipment will cause the UPS to shut down. This happens because the powered equipment temporarily draws power that significantly exceeds the nominal power of the UPS, which causes an overload detection and consequently a shutdown. This situation may occur in the case of:
 - Television sets and monitors (as they are switched on, the picture tube is degaussed which temporarily requires a lot of power),
 - Laser printers (drum warming cycle),
 - Other products with similar operating features.

Therefore, if a UPS is to be used with equipment other than computers, its compatibility with equipment used must be verified. In order to do this, all devices should be connected to the UPS and its operation should be observed in all modes, i.e. start-up, shutdown, stand-by, etc..

USING THE TELECOMMUNICATIONS FILTER

In order to safeguard the telephone line and connected devices, such as modems or telephones, the SINLINE UPSs are equipped with an anti-overvoltage filter which safeguards the devices connected against overvoltages in the telephone line. If the filter is to safeguard the device correctly, they must be connected by a cable with RJ11 or RJ12 terminators. The existing telephone line should be connected to the other outlet socket of the filter. The filter is symmetrical, so it does not matter to which of the two sockets the telephone line is connected.

STORAGE, MAINTENANCE AND TRANSPORT

The UPS should be stored in a cool and dry place, in operating position, with batteries completely charged:

- In temperatures between 0°C and +30°C the battery should be charged every 6 months;
- In temperatures between +30°C and +45°C the battery should be charged every 3 months.

The UPS should be transported in the original packaging and in conditions conforming to the product's specification (see storage conditions). If the packaging is missing or a non-original, or incomplete packaging is used, EVER Sp. z o.o. shall not be liable for any mechanical damages that occur in transport.

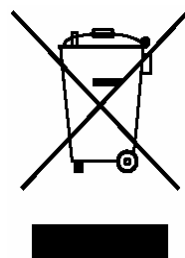
FUSE REPLACEMENT – SINLINE Tower UPSs

If the power consumption of a device connected to the UPS exceeds its nominal power or if a shorting in a mains socket takes place, it may cause the fuse to burn (pertains to UPSs with power of 800 VA, 1200 VA, 1600 VA). In order to replace the fuse, turn the UPS off with the power switch, remove the power cord from the socket, remove the fuse holder and replace the fuse with a spare one that conforms to the BACK-UP'S specification. The holder contains one spare fuse (in addition to the one installed).

DISPOSAL

Appropriate disposal of used-up electric and electronic equipment helps to avoid consequences of the presence of dangerous materials, as well as inappropriate storage and processing of such equipment, which may be hazardous to human life and the environment.

Act dated 29 July 2005 on used up electric and electronic equipment, Article 22.1 items 1 and 2.



According to the applicable EU regulations, a crossed rubbish bin symbol means that when a product is no longer used, it should be disposed of at a special waste pickup site. This concerns the device itself, as well as other accessories marked with this symbol. Do not dispose of those products together with unsorted household waste.

Method of safe removal of the batteries from the appliance:

The batteries should be removed from the appliance by an authorised service outlet or by a duly authorised electrician.

TECHNICAL PARAMETERS – Tower Model

PARAMETERS / UPS TYPE	SINLINE 800	SINLINE 1200	SINLINE 1600	SINLINE 2000	SINLINE 3000
Output power ¹⁾	800VA/ 520W	1200VA/ 780W	1600VA/ 1040W	2000VA/ 1300W	3000VA/ 1950W
Working environment	Office or industrial rooms with low level of pollution				
Operating temperature ²⁾	+10 ÷ +35 °C				
Storage temperature	0 ÷ +45 °C				
Relative humidity for operation	20 ÷ 80 % (without condensation)				
Relative humidity for storage	20 ÷ 95 % (without condensation)				
Altitude (above sea level) ³⁾	up to 1000 m				
Maximum length of outgoing cables	< 10 m				
MAINS OPERATION MODE					
Input voltage ⁴⁾	~160 ÷ 264 V (~145 ÷ 280 V) ± 2 %				
Frequency of input voltage	45 ÷ 55 Hz ± 1 Hz				
Range of output voltage ⁴⁾	~184 ÷ 264 V (~167 ÷ 280 V) ± 2 %				
Switching thresholds: mains – UPS ⁴⁾	~160 V / ~264 V (~145V / ~280 V) ± 2 %				
Shape of output voltage	Sinus				
Filtering of output voltage	Noise filter RFI/EMI varistor damper				
Time to switch to UPS	<3 ms				
BATTERY MODULE (BATTERY) OPERATION MODE					
Output voltage (effective value)	~230 V ± 5 %				
Shape of output voltage	Sinus				
Switching thresholds: UPS – mains ⁴⁾	~165 V / ~259 V (~150 V / ~275 V) ± 2 %				
Frequency of output voltage	50 Hz ± 1 Hz				
Filtering of output voltage	LC				
Shorting protection	Electronic				
Overload protection	Electronic				
Time to switch back to mains operation	0 ms				
Support time 100%/80%/50%P _{max}	5/7/12 min	4,5/6/10 min	4/5/8 min	4/5/9 min	3/4/8 min
Battery	2 x 5 Ah	2 x 7 Ah	3 x 5 Ah	4 x 5 Ah	4 x 7 Ah
Maximum charging time	5 h	7 h	5 h	5 h	7 h
MECHANICAL PARAMETERS					
Dimensions (h x w x d) [in mm]	190 x 165 x 480				190 x 165 x 640
Weight	14 kg	16 kg	20 kg	23 kg	28 kg
EQUIPMENT					
Number of outlet sockets	4				
Signalling	Acoustic and visual (LEDs)				
Circuit breaker	Fuse 5x20mm 10 A			Circuit breaker 15 A	
Telecommunications filter	Available				
Communication interface	RS 232				

Note: The manufacturer reserves the right to change the abovementioned parameters without prior notice.

Notes:

- ¹⁾ For normal operation of the UPS the load connected to its output should not exceed 80% of value indicated in the table. Reserve power is essential to ensure continuous operation of connected devices in case of momentary rushes in load current.
- ²⁾ Continued exposure of the UPS to the temperature of the surrounding exceeding +25°C will shorten the life of batteries.
- ³⁾ If the altitude above sea level increases beyond the provided limit the permitted load power of the battery module decreases.
- ⁴⁾ The user change the switching thresholds by setting standard or enhanced thresholds, respectively (provided in parentheses)

TECHNICAL PARAMETERS – Rack Model

PARAMETERS / UPS TYPE	SINLINE 1200 Rack	SINLINE 1600 Rack	SINLINE 2000 Rack	SINLINE 3000 Rack
Output power ¹⁾	1200VA/ 780W	1600VA/ 1040W	2000VA/ 1350W	3000VA/ 1950W
Working environment	Office or industrial rooms with low level of pollution			
Operating temperature ²⁾	+10 ÷ +35 °C			
Storage temperature	0 ÷ +45 °C			
Relative humidity for operation	20 ÷ 80 % (without condensation)			
Relative humidity for storage	20 ÷ 95 % (without condensation)			
Altitude (above sea level) ³⁾	up to 1000 m			
Maximum length of outgoing cables	< 10 m			
MAINS OPERATION MODE				
Input voltage ⁴⁾	~160 ÷ 264 V (~145 ÷ 280 V) ± 2 %			
Frequency of input voltage	45 ÷ 55 Hz ± 1 Hz			
Range of output voltage ⁴⁾	~184 ÷ 264 V (~167 ÷ 280 V) ± 2 %			
Switching thresholds: Mains – ups ⁴⁾	~160 V / ~264 V (~145V / ~280 V) ± 2 %			
Shape of output voltage	Sinus			
Filtering of output voltage	Noise filter RFI/EMI varistor damper			
Time to switch to UPS	<3 ms			
BATTERY MODULE (BATTERY) OPERATION MODE				
Output voltage (effective value)	~230 V ± 5 %			
Shape of output voltage	Sinus			
Switching thresholds: ups – mains ⁴⁾	~165 V / ~259 V (~150 V / ~275 V) ± 2 %			
Frequency of output voltage	50 Hz ± 1 Hz			
Filtering of output voltage	LC			
Shorting safeguard	Electronic			
Overload protection	Electronic			
Time to switch back to mains operation	0 ms			
Support time 100%/80%/50%P _{max}	4,5/6/10 min	4/5/8 min	4/5/9 min	3/4/8 min
Battery	2 x 7 Ah	3 x 5 Ah	4 x 5 Ah	4 x 7 Ah
Maximum charging time	7 h	5 h	5 h	7 h
MECHANICAL PARAMETERS				
Dimensions	2U x 19" x 320	3U x 19" x 400	3U x 19" x 400	3U x 19" x 400
Weight	20 kg	25 kg	32.5 kg	35 kg
EQUIPMENT				
Number of outlet sockets	6 x IEC320 C13			
Signalling	Acoustic and visual (LEDs)			
Circuit breaker	10 A	10 A	15 A	15 A
Communication interface	RS 232			

Note: The manufacturer reserves the right to change the abovementioned parameters without notice.

Notes:

- ¹⁾ For normal operation of the UPS the load connected to its output should not exceed 80% of value indicated in the table. Reserve power is essential to ensure continuous operation of connected devices in case of momentary rushes in load current.
- ²⁾ Continued exposure of the UPS to the temperature of the surrounding exceeding +25°C will shorten the life of batteries.
- ³⁾ If the altitude above sea level increases beyond the provided limit the permitted load power of the battery module decreases.
- ⁴⁾ The user may change the switching thresholds by setting standard or enhanced thresholds, respectively (provided in parentheses).

INFORMATION REGARDING REGULATIONS AND WARRANTY

DECLARATION OF CONFORMITY

The UPS was manufactured in Poland and its structure conforms to appropriate subject matter standards.

WARRANTY

A separate document attached to the product constitutes the warranty. The document must meet all formal requirements (e.g. the following fields must be populated: serial number, model/type, date of sale, and dealer stamp).

The manufacturer made all efforts to ensure that products offered are free of material and workmanship defects. The company's liability under the warranty shall be limited to repairs or replacement of products with such defects. The manufacturer shall make the decision as to how the defect is removed. The warranty shall not cover devices with mechanical damages that occurred as a result of negligence or incorrect use, nor devices subjected to any modifications made by the user. Apart from the arrangements included in the warranty card EVER Sp. z o.o. shall not grant any guarantee or warranty, including warranty of merchantability or fitness for particular purpose.

Apart from the arrangements included in the warranty card EVER Sp. z o.o. shall not be liable for direct, indirect, specific, incidental or consequential losses incurred in the course of using the UPS, even in cases when the buyer was warned about such losses being a possibility. The company shall not be liable for any costs, such as loss of profit or revenue, cost of equipment, costs of equipment use, costs of software, data, replacement products, claims of third parties or other costs.